

## SIGNAL TRANSMISSION SYSTEM WITH PROGRAMMABLE VOLTAGE REFERENCE

### ABSTRACT OF THE DISCLOSURE

5 A high speed signal transmission system employs differential receivers for receiving data signals transmitted over circuit transmission lines. One input each receiver is coupled to the output of a transmission line and to a termination network. The termination network generates a termination voltage and a source impedance that is matched to the characteristic impedance of the transmission line. The other input of the receiver is coupled to a reference voltage. The termination voltage may be adjusted by programming signals while keeping the source impedance constant and matched to the transmission line. A test mode may be employed where known data signals are transmitted and received and the termination voltage is adjusted while monitoring the states of the received signals on the output of the receivers. In this manner, the system may be optimized or tested for noise margin in an actual operation environment without resorting to probing methods. The clock signal used to time the transmission of the data signals is likewise transmitted along with its complement on two additional transmission lines. The clock signals are received in termination networks like the data signals. Additionally, the two clock signals are coupled to the reference signal with resistor/capacitor filter networks generating a low frequency tracking voltage superimposed on the reference voltage further improving noise margins.

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